instead of being microscopic are often of large size. While many are but one or two lines in diameter, others are one or two feet. The large Fungia, with its stellate surface and sprinkling of emerald tentacles around its central mouth, is one of the most beautiful objects of the coral reef.

The foregoing remarks are presented as an introduction to a more particular account of the structure and habits of zoophytes.

XVIII.—*Observations on the Generation of* Ixodes.

By Prof. Gené. Communicated by Alfred Tulk, M.R.C.S.

Though some time has now elapsed since a paper bearing the above title was read by Professor Gené of Turin at the Scientific Association held in Milan in 1844, and subsequently reported in its 'Transactions' during the past year, we have been induced to avail ourselves of the latter source to give the reader an account of the facts therein recorded concerning the manner in which the generative functions are performed by both sexes of a genus of Tracheary Arachnida, belonging to the tribe *Acarides*; and in trespassing upon the reader's attention thus late in the day, we would urge as an excuse the very striking relation, if only approximative in kind, between the organ employed by the male *Ixodes* to copulate with the female, and the palpi as ministering to similar uses in the *Araneides* or true Spiders. The Professor showed how DeGeer had been the first to observe the copulation of the *Ixodes*, which act consists on the part of the male, which is very much smaller in size than the female, introducing its rostrum into the orifice situated upon the middle of her sternum between the coxæ of the last pair of legs; but inasmuch as neither DeGeer, Hermann, and subsequent naturalists were certain whether this strange union was actually one of a sexual character, he commenced by adducing a large number of observations of his own, tending to remove any doubt that might exist upon the question, by proving that the male actually inserts his rostrum and that only into the female aperture, and that its fecundating organs consist of two small white and fusiform bodies which during this insertion emerge on the right and left of the inferior labium, while upon the retraction and consequent disappearance of these organs, the male, being then detached from the female, scarcely appears the same creature.

In the year 1806 Chabrier had announced that the females of *Ixodes* gave birth to their ova through the oral opening or mouth; a statement, however, refuted ten years afterwards by Pastor Müller of Odenbach, who observed that the ova issued from the proper sternal canal of the female, who in expelling each ovum

effected this by means of a conical and tubulose tubercle. This observation, tending to contradict the assertion of Chabrier, was afterwards repeated and confirmed by Lucas, but neither he nor Müller had seen the half of what takes place in *Ixodes* during the emission of ova.

The female of *Ixodes*, after having been fecundated by one or by several more males in succession, proceeds without any delay to perform this long operation. To this effect she commences by depressing upon the sternum all the palpi that compose the rostrum, when there is seen to be protruded with an easy gliding motion from beneath the dero-cephalic plate a turgid vesicle of a white colour, and which from its being terminated by two lobes of equal consistency and colour, having at their apex a most minute aperture, our author designates provisionally the *vesica biloba*. When this organ, which had been seen neither by Müller nor Lucas, has been well dilated so as to project beyond the rostral palpi, the animal everts the pectoral canal and gives exit to the oviduct, which being protruded like the feeler of a snail, proceeds at once to disburden itself between the lobes of the vesica. This clasps, compresses, and appears as if sucking the oviduct for a few seconds; but after this the oviduct is retracted, re-enters the sternum, leaving an egg between the lobes of the vesicle, which clasps it firmly, turning it to and fro in all directions, and vibrating now and then in a spasmodic manner. Four or five minutes having elapsed, during which time the ovum remains between its lobes, the vesicle disappears by re-entering its internal situation; the ovum is left upon the inferior labrum, and this being elevated along with all the palpi that compose the rostrum, thrusts the ovum upon the dero-cephalic plate or in front of the body. These acts are renewed for as many ova as the female may have to discharge.

The Professor did not know what might be the office of this bilobed vesicle. He suspected at first that it might be the receptacle of the semen: that deposited by the male during coition in the oviduct was transferred thither, so as to accumulate, by means of some internal channel, but the existence of such a communication the anatomy failed to reveal, added to which it would require too long and improbable a transit. He imagined likewise that from this organ might issue the glutinous fluid with which the ova are besmeared, but this conjecture also had to be renounced, upon ascertaining that they were already viscid and adhesive at their immediate exit from the oviduct. In such a state of doubt recourse was had to an experiment, which produced the following important result. Having punctured, with the point of a fine needle, the vesica biloba of various pregnant females, so as to prevent its further distension, he then saw, that

while the ova in uninjured females, after passing through that organ, remained turgid and were hatched in due time, that they now, from undergoing no intermediate process, fell from the oviduct, shrivelled up readily and died. Whatever therefore might be the real use or action of the bilobed vesicle, its very primary importance was at all events determined by the death or life of the ova, depending upon its being injured by puncturation or not.

The remainder of the paper was devoted to the prodigious fecundity of *Ixodes*, the females of which, according to their individual size, and the species whereunto they belong, give birth to more than a thousand ova, being so employed, without intermission, from ten to thirty consecutive days. To deposit these ova, the female when in a mature state of pregnancy detaches herself from the animal upon whose blood she has lived as a parasite by suction and falls to the ground; the young, which are hatched sooner or later according to the heat of the season, remain for some time quietly congregated together, but at the first impulse arising from want of food, they part company, and ascend the stalks of herbs and shrubs to await the passing by of that animal upon which instinct bids them subsist. They have then only six legs; but after the change has taken place, when the old rostrum and integuments are left adhering to the skin of the animal upon which they prey, they are then shown to be in an adult and perfect state, that is, furnished with eight legs. The whole paper, rich in facts, and of which the above is an abstract, was illustrated when read by a wax model of the female *Ixodes* as seen, when largely magnified, in the act of depositing her ova. It is to be hoped that some such masterly observer and arachnologist as Mr. Blackwall among our own countrymen may furnish us with additional evidence relative to the singular facts here recorded.

XIX.—*Description of the Species of* Cephalophus (H. Smith) *in the Collection of the British Museum.* By J. E. Gray, Esq., F.R.S. &c.

The determination of the species of Antelopes has for a long time been considered one of the most difficult programs in zoology, and the Tufted Antelopes have perhaps been the least studied of the group. Finding, when revising the nomenclatures of the species of this genus in the British Museum collection, that there were several which do not yet appear to have been described, and that they appeared to have more prominent characters than have hitherto been given to them, I have ventured to send you for publication in the 'Annals' the result of my revision of the group.